

### ABSTRACT OF THE DISCLOSURE

Chemiluminescent assays to determine the presence and/or amount of one or more labeled analytes in a sample are described wherein a solid support is contacted sequentially with first and second chemiluminescent substrates each of 5 which are capable of being activated by an enzyme and the resulting chemiluminescent signals are detected. A plurality of probes are disposed on a surface layer of the solid support in a plurality of discrete areas. Some of the probes are bound to a conjugate of the first enzyme and some of the probes are bound to a conjugate of the second enzyme. The assay can be used to compare 10 biological samples (e.g., mRNA populations from different cells) on the same support surface. Alternatively, one of the chemiluminescent signals generated can be used as a control signal for normalizing the chemiluminescent assay data.